

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
23 October 2003 (23.10.2003)

PCT

(10) International Publication Number  
**WO 03/087773 A2**

(51) International Patent Classification<sup>7</sup>: **G01N**

Street, Livermore, CA 94550 (US). ROACH, David, John [US/US]; 15904 Cherry Blossom Lane, Los Gatos, CA 95032 (US). ARMSTRONG, Thomas, M. [US/US]; 1556 Halford Avenue, Suite 423, Santa Clara, CA 95051 (US). BURGI, Dean [US/US]; 767 Mahogany Lane, Sunnyvale, CA 94086 (US). DOLNIK, Vladislav [US/US]; 409 Kent Drive, Mountain View, CA 94043 (US).

(21) International Application Number: **PCT/US03/11454**

(22) International Filing Date: 14 April 2003 (14.04.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/372,359 12 April 2002 (12.04.2002) US

(71) Applicant (*for all designated States except US*): **AMER-SHAM BIOSCIENCES (SV) CORP** [US/US]; 928 East Arques Avenue, Sunnyvale, CA 94085 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **HUTTERER, Katarina, Maria** [US/US]; 1720 Halford Avenue, #321, Santa Clara, CA 95051 (US). **OLSON, Nels, A.** [US/US]; 5240 Fiori Terrace, Apt. J109, San Diego, CA 92122 (US). **JOVANOVICH, Stevan, Bogdan** [US/US]; 723 Hazel

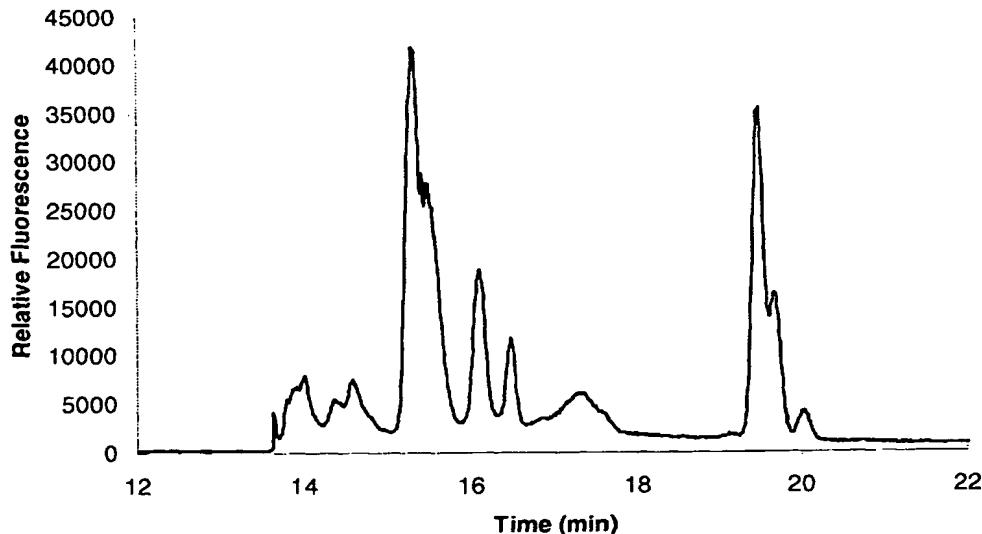
(74) Agents: **RONNING, Royal, N., Jr. et al.**; Amersham Biosciences Corp, 800 Centennial Avenue, Piscataway, NJ 08855 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

*[Continued on next page]*

(54) Title: **MULTIPLEXED CAPILLARY ELECTROPHORESIS SYSTEMS**



**WO 03/087773 A2**

(57) Abstract: Multi-capillary systems for high-throughput electrophoretic separation and detection of biomolecules are disclosed. One embodiment of the invention uses galactomannans as a size-sieving matrix for multi-channel electrophoretic separations of biomolecules. Multi-color detection for the simultaneous analysis of controls and standards in the same channels as the samples, and endogenous fluorescence detection are also disclosed. Another embodiment of the invention is a two dimensional system for separation of complex samples, using multiplexed capillary electrophoresis system as the second dimension, with a fraction collection step connecting the two separation steps. The systems allow for separations to be accomplished with a highly parallel manner, or in a two-dimensional format.